

## **EC2000 The Battle for Europe**

Air to Air Refueling

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## Air to Air Refueling

The single biggest difference between the EC2000 Battlesets and their predecessors is the incorporation of Air to Air refueling. Aircraft that are so equipped can fly combat sorties well in excess of their stated ranges.

EC2000 contains most of the tanker assets operating in the world today. These aircraft are valuable force multipliers and should be protected whenever they approach contested air space. Unfortunately your computer opponent cannot utilize this feature as tankers used by the computer will not extend the range of a given aircrafts operational range set during the scenario design process. To compensate for this technical inequality we have designed all scenarios from a single perspective. With this in mind a more realistic and playable balance could be achieved in each of the scenarios.

There are a couple of key principles that must be understood with regard to Air to Air refueling. The first and foremost of these is that each tanker no matter the size or amount of fuel available for transfer can only refuel one group of aircraft. If a KC-135R refuels a single F-16C 50 miles from base that KC-135R must land and recycle before it can transfer fuel again. This restriction necessitates careful mission planning. There is nothing more frustrating than watching a victorious strike group returning from a mission crash into the sea because they ran out of fuel.

Each tanker is capable of giving away an amount of fuel equal to the range of the tanker, i.e. a KC-135R has a range of 7000 miles. It can therefore give away 7000 miles worth of fuel. The fuel (or miles) will be distributed equally amongst the group being refueled. If there are 10 aircraft in the group being refueled, each aircraft would receive 700 miles worth of fuel. This fuel give-away will NOT affect the tankers mission range.

When a tanker is launched with a group, it will begin the refueling process when the shortest range aircraft in the group reaches bingo. When refueling is complete, the tanker will split off from the group and return to base. If additional range is required beyond that available by launching a tanker with the group, additional tankers can be launched ahead of the strike group and positioned along the flight path of the group to be refueled. These tankers must be joined manually as the strike group reaches the tankers location. Missions requiring operation at extreme ranges may require multiple refuelings to and from the target. To activate a tanker manually use the ALT-R command from your keyboard. When refueling is complete the tanker will split from the group and return to base.

A sound tactic with regard to tanker operations is to station an ALERT tanker, not dedicated to any operation, as far forward as possible. Make sure to provide escort for the ALERT tanker, as enemy fighters will attempt to intercept and destroy it. The ALERT tanker should be used only when a group, for whatever reason, is in danger of running out of fuel before a dedicated tanker can be reached. If you use the ALERT tanker (and you will!) make sure to replace it as soon as possible. Long range strike and patrol missions require a good deal more planning and micro management than in previous Battlesets. Fighters can remain on station at longer ranges with tanker support, and aircraft carriers can remain well out to sea in a high threat environment.

A final note here to scenario designers: if you design a scenario single sided as we did with EC2000 you will find it useful to include a victory condition related to the destruction of a percentage of the dedicated tankers available in that scenario. This will force the player to pay attention to rear area security and give the computer a fighting chance.



## Counter Mine Warfare (MCM)

A new dimension has been added to Harpoon Classic, Counter Mine Warfare. In the real world this type of operation is actually known as Mine Counter Mine or MCM. In EC2000 we keep the acronym but we only simulate the clearing of mines. Unfortunately as a battlegroup commander you can not lay offensive or defensive barriers. You can only clear existing barriers built by the Scenario Designer.

Historically mines have been used to deny access to a strategic choke point or other area of intended operation. Using the Scenario Editor, the designer now has the ability to create the same kind of tactical problems seen in the real world. Mines in EC2000 come in many types and sizes from the common contact mine to the elaborate ATM (N) nuclear mine. All mines are modeled as small submarines which are not capable of movement (they may appear to move once detected but this can be attributed to drift). They will engage any hostile ship that comes into their weapons range. Each mine is armed with only one weapon, the type dependent on the mine in question. Once that weapon has been expended the mine shell that remains is harmless. Some mines are equipped with active sonar capabilities and can be set using the sensor button to intermittently sweep the area in search of hostile contacts. This can be very useful when trying to impede the progress of your enemy. Generally speaking, this tactic is best used with small mine fields widely scattered. The intermittent sonar sweeps will force counter mine forces to search the entire area prior to the entry of your battlegroup.

There are basically two different classes of mines available in EC2000. The standard Contact type mines, the most widely used in the world today, are used by smaller less sophisticated navies. These mines are typically a large spherical object with contact rods protruding from all sides. Contact mines come in 3 sizes: 250lb, 500lb and 1000lb. Typically a minefield should consist of varying numbers of different size mines, deployed in intermittent patterns based on the area to be protected. It is critical that contact mine fields be set at periscope depth. Submarines and mines in Harpoon Classic default to intermediate depth -- too deep to be effective against surface shipping.

Modern navies of the world may still use contact mines. In most cases they rely on the more capable Captor type torpedo mine that have various acoustic sensors allowing the mine to attack targets at greater ranges, with a higher degree of reliability. These mines, generally speaking, are almost as capable against submarines as they are against surface targets. During a time of war most modern powers can be expected to erect anti-submarine mine fields along the entryways to their ports to prevent hostile submarines from slipping in and gathering intelligence or attacking high value targets. The last and most important thing to consider when constructing a mine field is anything that comes in contact with that barrier will be a known contact. You can use this tactic to bolster the early warning capability of technically challenged nations.

### CLEARING MINES

Clearing mines in Harpoon Classic is very similar to anti-submarine warfare (ASW). In fact many ASW weapons can be used to clear minefields though this is a waste of very valuable assets. As noted earlier, when you begin clearing a minefield the enemy will be aware of your action and send all available forces to your locations, so those ASW helos should be busy looking on the flanks for visitors.

Mine sweeping helos, when available, should work well ahead of the group to be escorted dropping channel markers (sonobuoys) along a cleared line of advance. When a mine is discovered the helo should be used to destroy it.

When clearing mines by surface means the mine sweeper should proceed at 5 kts with its sonar active. It is important to note here that different types of mines require different types of sweeping. Contact mines and anti-submarine mines can be swept by surface ships with relative ease. Cluster Gulf, ATM N and Captor type mines are best cleared by helicopters, as they would require a surface vessel to come within their weapons envelope before it could be swept.

The final benefit to minefields is that counter mine forces tend to be slow and in short supply. The destruction of a counter mine force can disable or completely destroy an offensive.

## Theater Ballistic Missile Defense

Desert Storm, live on cable TV, featured the first look at the future of hi-technology warfare. Saddam Hussein with his Scud missiles captured the world's attention as his errant shots fell across Israel and Saudi Arabia. Little military damage was sustained by the coalition but the political fallout was almost catastrophic. Political pressure inside Israel grew each time a Scud landed in the tiny country. Calls for retaliation by the Israeli Defense Force (IDF) were growing quickly and soon requests were made by the IDF for IFF codes that would allow the Israelis to join the fight. Arab members of the coalition including the Saudis immediately protested the possibility of IDF involvement. Many threatened to withdraw from the coalition if the Israelis were supplied with coalition identification codes. In an effort to relieve the pressure, CentCom immediately shipped Patriot missile systems to Israel and began releasing videos of each of the Scud vs. Patriot engagements. So successful was the public relations campaign by CentCom that pressure inside Israel immediately eased as the fear of the unknown was vanquished by the spectacular light show created each time a Patriot left its launcher. Wall Street was impressed as Raytheon stock, the maker of Patriot, rose almost as quickly as the missile.

After the successful conclusion of Desert Storm, the U.S. Army began an after-action review of the Patriots performance in the Gulf War. After studying the high speed film of the engagements the Army concluded that in almost all cases Patriots fused and detonated behind the inbound Scud with little or no effect on the Scud's trajectory. Research quickly began on these newly discovered problems and the Army, in conjunction with its corporate partners, soon developed the PAC3. This missile, an upgrade of the original round, featured higher altitude, longer range, and a more sensitive proximity fuse that gives it a true Theater Ballistic Missile Defense capability. These rounds, substantially more expensive than the standard rounds, are loaded in a small number of the battery's available tubes. The U.S. Navy, not to be outdone, developed the SM-2 Block IV Leap for the MK41 Vertical Launch System (VLS). Aegis equipped cruisers and destroyers, armed with the MK41, give the U.S. Navy a highly mobile, very capable Theater Ballistic Missile Defense system.

In the EC2000 Battlesets, Patriot PAC3 missiles are only available on the Patriot Air Defense Barge. Arleigh Burke Flight II destroyers and the VLS Ticonderoga TMD cruisers are each armed with the SM-2 Block IV Leap. These expensive missiles are available in short supply. Each ship is armed with a few ready rounds and these will be replaced from available supplies. This will happen automatically after the engagement, allowing the ship to stay on station and continue the assigned mission. Since the missiles do not occupy a great number of cells in the MK41s, these ships can be given a secondary assignment when the TBM threat has subsided.

## **Recon, Missile Barges and the Pop-up SAM Threat**

In Harpoon Classic the suppression of hostile land based air defenses has always been a straightforward endeavor. Attack the fixed site over and over with anti-radiation missiles and when the target runs out of missiles or quits emitting, send in the strikers with the heavy stuff. This strategy was and is sound except for one new wrinkle. We have added new platforms that represent land based mobile air defense systems deployed on flat work barges. These systems will lay dormant along the coastline of the country in question and only activate when an unsuspecting aircraft wanders into its weapons envelope. Missile barges are available in many flavors and are likely to be found in groups supporting each other. Unlike previous SAM systems in Harpoon Classic, these barges will reload themselves after each engagement and must be neutralized before a strike package attempts to enter their airspace.

To counter this new threat, we have added a multitude of reconnaissance platforms from F-14 TARPS to the SR-71. These assets should be used prior to the launching of a strike operation to locate and identify any possible threats. Once discovered, standard Suppression of Enemy Air Defense (SEAD) tactics should be used until the barges are neutralized or destroyed.

There are other barges available: LP or Listening Post barges are capable of supporting helicopters, SS-21 ballistic missile barges are capable of firing theater ballistic missiles, and coastal defense barges are armed with surface anti-ship missiles.

In summary, as in real life, pre-strike reconnaissance of a target is vital to the safe return of your strike aircraft. Remember, the only dangerous SAM system is the one you don't know about.

## **Air Assaults -- New Targets -- Special Operations**

As you explore the new EC2000 databases you will find many transport aircraft that have the assault loadout. Usually in this loadout will be some form of ground force, i.e. Rangers, Special Forces, etc. In all previous Battlesets the transport aircraft were there for flavor or to provide an unarmed target to be protected. In EC2000, with the addition of the assault load, these transports are now able to attack targets using the aforementioned ground force. The actual assault works very much like a standard bombing mission using conventional iron bombs. The cargo aircraft closes to within 1 mile and drops its load on the ground target in question. You will notice that ground forces come in a variety of types and sizes with varying amounts of damage points.

Added to the available types of bases are Landing Zones (LZs), Beachheads, TV stations, C3I Centers, etc. These targets in most cases have no self defense capability and can be attacked successfully using assault forces.

It is however imperative to the safety of your assault force that the intended ingress route be thoroughly reconned prior to their arrival. An undiscovered SAM barge can wreak havoc on your transports and ruin your Rangers day. Most targets that are air assaultable, i.e. Beachheads, Landing Zones (LZs), TV Stations, as mentioned earlier, have no self protection capability. However they are usually defended by either fixed SAM sites or the more dangerous SAM barge.

An ounce of prevention is worth a pound of cure. To insure the successful completion of your air assault mission you should have:

1. Complete air supremacy. Transports are easy pickings for even the basic fighter types.
2. Complete and thorough reconnaissance of the intended route of your assault force. Suppression of hostile air defense forces is critical to your survival.
3. An integrated Airborne Early Warning network with available fighters on call to deal with any uninvited guests, and SEAD aircraft for the possible SAM system that had been missed by the earlier recon missions.

In conclusion, you will find that air assault missions are the ultimate in force packaging operations. Careful planning must be used to insure that your ground forces arrive safely at their destination. One last note about air assaults: targets attacked by ground forces can only be destroyed or damaged. It is not possible to seize a target and use it for your own operations.



